**T10D03 - Functional groups, nomenclature and structural formulae**

**1.** Which of the following is an amide?

A. CH3CH2NH2

B. CH3CONH2

C. [CH2CONHCH2CO] n

D. CH3CH2C≡≡N

**2.** Which of the following is **not** pentane or one of its isomers?

A. CH3(CH2)3CH3

B. (CH 3)2CCHCH3

C. (CH 3)2CHCH2CH3

D. (CH 3)4C

**3** What is the name of the compound CH3CH2COOCH3 ?

A. Butyl methanoate

B. Methyl butanoate

C. Methyl propanoate

D. Pentanone

4. What is the IUPAC name for the following compound?



A. 3-methyl-4-ethylnonane.

B. 3,3-dimethyl hexane.

C. 3-ethyl-4-methylhexane.

D. 3-methyl-4,4-diethylbutane.

5. The compound contains functional groups characteristic of



A. aldehydes, amines, alcohols.

B. ketones, amines, alcohols.

C. acids, amides, ethers.

D. aldehydes, amides, ketones.

6. On separate file paper write out the **full** structural formula **AND** the condensed formula of the following molecules:

* 1. methanal
  2. butanone
  3. pentan-3-one
  4. butanoic acid
  5. propan-2-ol
  6. propanamide
  7. 3-aminohexane
  8. 1,1,2-trichloroethane
  9. 1,2-dibromoethene

7. Name each of the following organic compounds:

a) CH3CH2CH2CH3 j) CH3CHBrCHBrCH3

b) CH3CH2CH2C(CH3)3 k) CH2BrCH(CH3)CHClCH2CH3

c) CH2=CHCH2CH2CH3 l) CH3CH(OH)CH(CH3)2

d) CH3CHClCH(CH3)2 m) (CH3)2CHCHO

e) (CH3)2C(OH)CH2CH3 n) CH3CH2CH2COCH3

f) CH3CHO o) (CH3)2CHCOOH

g) CH3CH2COCH2CH3 p) CH3CHBrCH(OH)CH3

h) CH3CH2COOH

i) CH3CH(OH)CH2CHO

8. Draw the structural formula of each of the following organic compounds.

a) 2,2-dimethylbutane g) 3-methylbutanone

b) 4-ethylhex-2-ene h) 2-bromobutanoic acid

c) 2-bromo-2-iodobutane i) 1,2-dichloropent-1-ene

d) 4-hydroxybut-1-ene j) 3-hydroxybutanoic acid

e) 2,2,3-trimethylbutane

f) 3-chlorobutanal

9. In each of the following questions, state which compounds, if any, are the same.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| a) |  |  |  |  |
|  | **A** | **B** | **C** | **D** |
| b) |  |  |  |  |
|  | **E** | **F** | **G** | **H** |
| c) |  |  |  |  |
|  | **I** | **J** | **K** | **L** |
| d) |  |  |  |  |
|  | **M** | **N** | **O** | **P** |